

WHAT IS CLAIMED IS:

1. A pixel structure of a liquid crystal display, wherein said liquid crystal display comprises a first substrate whereon said pixel structure is disposed, a second substrate whereon a conductor electrode is disposed and a liquid crystal layer sandwiched between said first substrate and said second substrate, said pixel structure comprising:

- a plurality of scan lines located on said first substrate and arranged in a first direction and parallel to each other;

- a plurality of common electrode lines located on said first substrate and arranged in the first direction and parallel to each other, wherein said plurality of scan lines and said plurality of common electrode lines are alternatingly located in the first direction;

- a plurality of metal lines located on said first substrate and expanded from said plurality of common electrode lines;

- a first insulating layer located over said plurality of scan lines, said plurality of common electrode lines and said plurality of metal lines;

- a plurality of video data lines located on said first insulating layer and arranged in parallel to each other and arranged in a second direction to cross said plurality of common electrode lines and metal lines, wherein any adjacent scan lines and any adjacent video data lines define a pixel region, each pixel region comprising one of said plurality of common electrode lines and one of said plurality of metal lines expanding therefrom;

- a second insulating layer located over said plurality of video data lines;

- a plurality of pixel electrodes located over said second insulating layer, each pixel electrode located at a corresponding pixel region; and

- a plurality of switch transistors respectively located at said video data lines crossing said scan lines positions, wherein gate electrodes of said switch transistors are coupled to said scan lines and said video data lines are coupled to said pixel electrodes through said switch transistors.

2. The pixel structure of claim 1, wherein said first direction is perpendicular to said second direction.

3. The pixel structure of claim 1, wherein said pixel electrode is formed with an ITO or IZO material.

4. The pixel structure of claim 1, wherein said metal lines partially overlap with corresponding pixel electrode to form a capacitor structure.

5. The pixel structure of claim 1, wherein said metal lines are arranged around said pixel regions.

6. The pixel structure of claim 1, wherein said metal lines are arranged inside of said pixel regions.

7. A liquid crystal display drive method, wherein said liquid crystal display comprises a first substrate having a plurality of scan lines, video data lines and pixel regions disposed therein, a second substrate having a conductor electrode disposed therein and a liquid crystal layer sandwiched between said first substrate and said second substrate, each pixel region comprising a switch transistor, a pixel electrode connected with said switch transistor, a common electrode and a metal electrode expanding from said common electrode, wherein said pixel electrode, said common electrode and said metal electrode are isolated from each other, said drive method comprising:

applying a voltage to said common electrode to transform liquid crystal molecules located between said metal electrode and said conductor electrode and between said common electrode and said conductor electrode from splay state to bend state;

conducting said switch transistor; and

applying a voltage to said pixel electrode through said switch transistor to transform liquid crystal molecules in splay state to bend state.

8. The liquid crystal display drive method of claim 7, wherein said scan lines are used to transfer scan signals.

9. The liquid crystal display drive method of claim 8, wherein the gate electrode of said switch transistor is coupled to corresponding scan line, and said corresponding scan line is used to control said switch transistor.

10. The liquid crystal display drive method of claim 8, wherein said scan signals are used to control said switch transistor on/off.

11. The liquid crystal display drive method of claim 8, wherein said pixel electrode is coupled to a corresponding video data line when said switch transistor is turned on by a scan signal.

12. The liquid crystal display drive method of claim 7, wherein said video data lines are used to transfer video data signals.

13. A liquid crystal display drive method, wherein said liquid crystal display comprises a first substrate having a plurality of scan lines, video data lines and pixel regions disposed thereon, a second substrate having a conductor electrode disposed thereon and a liquid crystal layer sandwiched between said first substrate and said second substrate, each pixel region comprising a switch transistor, a pixel electrode connected with said switch transistor, a common electrode and a metal electrode expanding from said common electrode, wherein said pixel electrode, said common electrode and said metal electrode are isolated to each other, said drive method comprising:

conducting said switch transistor;

applying a voltage to said pixel electrode through said switch transistor; and

applying a voltage to said common electrode to transform liquid crystal molecules located between said metal electrode and said conductor electrode and between said common electrode and said conductor electrode from splay state to bend state, and to transform the liquid crystal molecules still in splay state to bend state.

14. The liquid crystal display drive method of claim 13, wherein said scan lines are used to transfer scan signals.

15. The liquid crystal display drive method of claim 14, wherein the gate electrode of said switch transistor is coupled to a corresponding scan line, and said corresponding scan line is used to control said switch transistor.

16. The liquid crystal display drive method of claim 14, wherein said scan signals are used to control said switch transistor on/off.

17. The liquid crystal display drive method of claim 14, wherein said pixel electrode is coupled to a corresponding video data line when said switch transistor is turned on by a scan signal.

18. The liquid crystal display drive method of claim 13, wherein said video data lines are used to transfer video data signal.

19. A drive circuit for driving a liquid crystal display, said liquid crystal display comprising a first substrate having a plurality of scan lines thereon, including a first to an N^{th} scan line, and a plurality of common electrode lines, including a first to an N^{th} common electrode line disposed thereon, a second substrate having a conductor electrode disposed thereon and a liquid crystal layer sandwiched between said first substrate and said second substrate, wherein said plurality of scan lines and said plurality of common electrode lines are alternately located in parallel to each other, said drive circuit comprising:

- a plurality of transistors, including a first to an N^{th} transistor, wherein source/drain electrodes of said plurality of transistors are used to receive scan signals, and gate electrodes of said plurality of transistors are sequentially coupled to said plurality of scan lines; and

- a plurality of inverters, including a first to an N^{th} inverter, wherein said inverters are alternatively coupled with said plurality of transistors, and an output end of a K^{th} inverter is coupled to a K^{th} common electrode line and coupled with a source/drain electrode of said $(K+1)^{\text{th}}$ transistor, where $K = 1, 2, 3 \dots, N$.

20. A liquid crystal display drive structure, wherein said liquid crystal display comprises a first substrate having a plurality of scan lines, video data lines and pixel regions disposed therein, a second substrate having a conductor electrode disposed therein and a liquid crystal layer sandwiched between said first substrate and said second substrate, each pixel region comprising a switch transistor, a pixel electrode connected with said switch transistor, a common electrode and a metal electrode expanding from said common electrode, wherein said pixel electrode, said common electrode and said metal electrode are isolated from each other, said drive structure comprising:

- means for applying a voltage to said common electrode to transform liquid crystal molecules located between said metal electrode and said conductor electrode and between said common electrode and said conductor electrode from splay state to bend state;

- means for conducting said switch transistor; and

means for applying a voltage to said pixel electrode through said switch transistor to transform liquid crystal molecules in splay state to bend state.